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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/814,658	03/21/2001	Dexter Chun	259/068	4338

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EXAMINER

GREY, CHRISTOPHER P

ART UNIT	PAPER NUMBER
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2667

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/814,658

Applicant(s)

CHUN ET AL.

Examiner

Christopher P Grey

Art Unit

2667

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Dec 28, 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. **The text of those sections of Title, U.S. Code not included in this action can be found in the prior Office action.**

2. Claims 1, 2, 3, 4, 7, 8, 13, 14, 16, 19, 20, 21, 22, 23, 24, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petch (WO 98/21897) in view of Lundh et al. (US 6577872)

Claim 1, 13, 21, 23, 24 and 26 Petch discloses a method within the field of communication networks for acquiring and maintaining synchronization in a wireless communication network. Disclosed in elements 16, 12 and 14 are major components of a wireless network in a BSC, BS and MS respectively (claim 24). As is well known to those skilled in the art the BSC works in conjunction with the BS. Petch discloses a BSC comprising a master clock circuit (local timer- see element 40 in Fig 2) that generates a clock signal, and Petch also discloses a GPS receiver (timing unit- see element 48 in Fig 2) that delivers an accurate timing pulse (claim 23 and 26). Upon reception of the GPS pulse, the base station determines whether the internal counter needs to be adjusted (disclosed on page 14 lines 9-25). Petch does not disclose a predetermined time offset.

Lundh et al. ('Lundh' hereinafter) discloses within a cellular telecommunications network a synchronization method comprising a BSC that further comprises a master timing unit and slave timing unit. Lundh discloses an exemplary goal of his invention which is to synchronize values in the nodes (nodes imply the use of processor boards) with alignment errors (predetermined offset) tolerable -1 msec and +1 msec (disclosed in Col 8 lines 39-58).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify determining if the internal counter needs to be adjusted as disclosed by Petch, with a determining offset of -1 msec and $+1\text{ msec}$ as disclosed by Lundh. The motivation for this modification is to adjust the internal counter for synchronization dependant on a timing offset range being exceeded.

Claim 2 and 14 Petch does not disclose the predetermined time offset being approximately 1 ms .

Lundh discloses an exemplary goal of his invention with alignment errors (predetermined offset) tolerable -1 msec and $+1\text{ msec}$ (disclosed in Col 8 lines 39-58).

Claims 3, 22 and 25 Petch discloses in Fig 1 BS's (elements 12) communicating with a BSC (element 16). Each BS is equipped with a GPS receiver that transmits a timing pulse to the BSC (disclosed on page 14 lines 9-25). One skilled in the art can appreciate the reception of GPS timing pulses in an alternating manner

Claim 4 and 16 Petch does not disclose the timing cells being transmitted to the processor boards over an ATM network.

Lundh discloses nodes that utilize ATM cells as disclosed in Col 6 lines 43-61.

Claim 7 and 19 Petch does not disclose a processor board not realigning its local timer with time information contained in a received timing cell when a time difference between its local timer and the time information contained in the received timing cell exceeds an error threshold, the error threshold being greater than the time offset.

Lundh discloses an uncertainty (error threshold) of no more than $\pm 2\text{ ms}$ as disclosed in Col 8 lines 39-58.

Claim 8 and 20 Petch does not disclose the error threshold being approximately 2 ms.

Lundh discloses an uncertainty (error threshold) of no more than ± 2 ms as disclosed in Col 8 lines 39-58.

Therefore it would have been obvious to one of the ordinary skill in the art, at the time of the invention, to be able to modify the method and components, particularly the BSC receiving from a GPS satellite a GPS timing pulse that is able to synchronize an internal counter within the BSC, as disclosed by Petch, with the RNC of Lundh, which uses a timing unit (which would be modified as a GPS timing unit) in order to synchronize its internal timer (using ATM cells), based on a predetermined offset and other means. Both Petch and Lundh have the common goal of synchronization, and achieve their inventions by similar and well known means. The motivation for this modification is to achieve within a wireless communication network, a method of synchronization that enables continuous and accurate synchronization and allows more control of adjustments necessary for synchronization.

3. Claims 5, 6, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petch (WO 98/21897) in view of Lundh et al. (US 6577872) in further view of Sayers (WO 00/69102)

Claim 5 and 17 Petch and Lundh do not disclose the timing cells transmitted to the processor boards over an Ethernet network

Sayers discloses a method within a wireless communication network for synchronizing clock signals in wireless networks. Sayers discloses a Lan network connecting slave BTSs to master BTS's (page 26 line17 page 27 line2)

Claim 6 and 18 Petch and Lundh do not disclose the timing cells transmitted to the processor boards over a universal serial bus.

Sayers discloses a clock synchronizer, which functions to select received master clock signals to provide a synchronized master clock signal to the local clock, connected to a clock distributor via a control bus (see element 9-50 in fig 7 and page 24 lines 1-13)

Therefore it would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the concept of Petch and Lundh's inventions, which were previously mentioned, by further applying the option of an Ethernet network or universal serial bus as a means of communication as disclosed by Sayers. Sayers shares the common goal of synchronization, and discloses the option and advantages of employing a control bus and Ethernet connection. The motivation for this modification is to have a faster and more reliable means of transmission.

4. Claims 9, 10, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petch (WO 98/21897) in view of Lundh et al. (US 6577872) in further view of Cho (US 6212170)

Claim 9 Petch discloses all of the limitations of claim 9 and Lundh further concentrates on the operation of the BSC when the error threshold is not exceeded. Lundh further discloses a master timing unit setting a *within range flag* (flag status) which indicates the error threshold not being reached (disclosed in Col 13 lines 53- 63). Lundh does not disclose specifically a memory.

Cho discloses a control device that manages status and information of boards in a clock distributor for use in a BSC. Cho discloses memory for storing the status of installation/abnormality (flag status) of boards as disclosed in Col 2 line65- Col 3 line 12

Claim 10 Petch discloses all of the limitations of claim 10 and though Lundh concentrates on the error threshold being within the given range, with the application of a *within range flag*, Lundh implies that when the threshold of +/-2 ms (addressed in claims 7 and 8) is exceeded, an out of range flag is set (disclosed in Col 13 lines 53- 63).

Claim 11 Petch and Lundh disclose all of the limitations of claim 11 but fails to disclose a main processor having a local database for periodically retrieving the fault status flag from the processor boards and storing the retrieved fault status flag in the local database; and a resource manager for assigning incoming calls to the processor boards based on the retrieved fault status flag.

Cho discloses an alarm control interface processor (main processor) that reads the information of the respective boards (monitors operational status) and the memory addressed in claim 9 for storing this information (disclosed in Col 2 line65- Col 3 line 32). Cho discloses an operator (resource manager) that receives the status information and is capable of managing the status and dual information of the respective boards as disclosed in Col 5 lines 23-31

Claim 12 Petch and Lundh disclose all of the limitations of claim 12 but fails to disclose the resource manager not assigning incoming calls to a processor board when the retrieved fault status flag of the processor board indicates an inoperable timing condition.

Cho discloses an operator (resource manager) that receives the status information and is capable of managing the status and dual information of the respective boards as disclosed in Col 5 lines

23 –31. It can be appreciated by one skilled in the art that if the status of a board is inoperable the operators duty would be to no longer assign incoming calls to that board.

Therefore it would have been obvious to one of the ordinary skill in the art at the time of the invention to further modify the concepts of Petch and Lundh that were previously mentioned, with the control unit provided in Cho's invention. The disclosed control unit is designed to be applied in a BSC (eg. BSC disclosed in Petch's invention) and is capable of managing the status of processor boards in the BSC and indicating any sudden changes in synchronization.

Response to Arguments

5. Applicant's arguments filed on December 28, 2004 have been fully considered but they are not persuasive.

Claims 1, 13, 21 and 24

(a) The applicant argued that the cited art does not disclose Applicant's synchronization of multiple processor boards.

The examiner maintains that the same limitation, in its broadest term, is already suggested in the rejection of claims 1, 13, 21 and 24, wherein Petch discloses a base station with an internal counter, which is adjusted in order to maintain synchronization (page 14 lines 9-25): Furthermore, the background of the Applicant's invention (clearly suggests that the base station controller comprises processor boards) and that timing information is distributed to these processor boards (page 1 lines 17-page 2 line 4). It would have been obvious to one of the ordinary skill in the art at the time of the invention that the internal counter within the base station controller as disclosed by Petch could be within the processor board within the BSC as

suggested by the background of the applicants invention, where synchronization as suggested by Petch could be performed.

(b) The applicant argued that the cited art does not teach the use of the term node implying processor boards.

The examiner maintains that the same limitation, in its broadest term, is already suggested in the rejection of claims 1, 13, 21 and 24, wherein the combination of Lundh is introduced to disclose a predetermined time offset, rather than the processor boards. The processor boards are suggested in the response to arguments (a) above. Furthermore, the background of the Applicant's invention states that a switch (node) is coupled to a plurality of processor boards (page 2 lines 5-16), where it would have been obvious to one of the ordinary skill in the art at the time of the invention to associate the node suggested in the rejection of claim 1, 13, 21 and 24 with processor boards.

(c) The applicant argued that the examiner fails to carry out the burden of making out a prima case for obviousness.

The examiner clarifies that case for obviousness, in combination with a motivation has been provided on page 5 of the previous non-final rejection. This case for obviousness and motivation is suggested for all of the claims enclosed within the rejections labeled 2:

"Therefore it would have been obvious to one of the ordinary skill in the art , at the time of the invention, to be able to modify the method and components, particularly the BSC receiving from a GPS satellite a GPS timing pulse that is able to synchronize an internal counter within the BSC, as disclosed by Petch, with the RNC of Lundh, which uses a timing unit (which would be modified as a GPS timing unit) in order to synchronize its internal timer (using ATM cells),

based on a predetermined offset and other means. Both Petch and Lundh have the common goal of synchronization, and achieve their inventions by similar and well known means. The motivation for this modification is to achieve within a wireless communication network, a method of synchronization that enables continuous and accurate synchronization and allows more control of adjustments necessary for synchronization.”

(d) The applicant argued that the cited art does not teach a clearly articulated motivation to combine the teachings of Petch and Lundh.

The examiner maintains the same motivation, and adds:

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify determining if the internal counter needs to be adjusted as disclosed by Petch, with a determining offset of -1msec and $+1\text{msec}$ as disclosed by Lundh. The motivation for this modification is to adjust the internal counter for synchronization dependant on a timing offset range being exceeded.

Claims 2-12, 14-20, 22 and 23

(a) The rejection of Claims 2-12, 14-20, 22 and 23 remains unchanged as they are dependent on claim 1, 13, 21 and 24.

Conclusion

5. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Art Unit: 2667

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P Grey whose telephone number is (571)272-3160.


The examiner can normally be reached on 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571)272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher Grey
Examiner
Art Unit 2667

C. Grey
5/12/05


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